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Project Description

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**Existing Transformer
Anylytical Results**

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Geoprobe Report

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	Technical Scope Document for Substations	
	Teall Ave – Transformer 1, 2, 3, & 4 Replacements	Version 1.0 - 09/12/2014

1.0 SUMMARY

1.1 Introduction

This document describes the scope of work for the replacement of four 115-34.5kV transformers (T.B. #1, #2, #3, and #4) at Teall Ave Station, located at 800 Factory Ave, Salina, NY 13208.

The objective of the project is to replace the twelve (12) single phase 1930/1940 vintage 115-34.5kV transformers (T.B. #1, #2, #3, and #4) with two (2) three-phase 115-34.5kV transformers (TR2 and TR4) at Teall Avenue Station in Central New York due to their asset condition. Transmission equipment asset condition and Distribution area loading are the drivers for this project.

The replacement/upgrade of the 115kV station equipment will be the first phase of a long term, multi-stage upgrade to take place at Teall Avenue Station. Distribution planning has advised Transmission Asset Management of a future increased need of the 34.5kV and 13.2 kV load out of the Teall Avenue Station in their long range planning studies. The 13.2kV aspect will be covered under a separate project along with a separate project to tentatively rebuild the 34.5kV area of the station.

The scope of work for this project includes new power transformers, upgrading the new transformer's high side protection, upgrading the secondary 115kV bus relay protection equipment, constructing new equipment concrete foundations, new transformer oil containments, refurbishing of the existing control house, installing new cable/conduit, lighting, ground grid, disconnects, etc. within the 115kV station.

The benefit of this project will be increased system reliability and upgrade to the 115kV system asset health. The two (2) new 115-34.5kV 30/40/50MVA transformers will also be able to operate in parallel and each fully support the 34.5kV part of Teall Ave station. This will enable the station the flexibility of switching either one of the new transformers off for future maintenance and testing without losing the station loading. An added future benefit will be the load relief of the Distribution asset's within the station.

The relevant planning study, project data sheet, sanction paper, and references are listed below:

- 'Teall Ave Transformer Replacement' – USSC-13-309, dated 12/10/2013 (Partial Sanction)
- 'Teall Ave Substation – Station Rebuild' – 9000120374, dated 11/26/12 (Specifically Alternative 4)

1.2 Site Safety

1.2.1 Numerous live 115kV and 34.5kV bus will be overhead during various work activities. Normal National Grid safety practices will be necessary...

1.3 Safety by Design (Group Classification 02.00)

1.3.1 No additional safety by design is explicitly applicable to this project.

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FILE:PR.02.00.018 TECHNICAL SCOPE DOCUMENT FOR SUBSTATIONS APP FILE: TEALL AVE – TRANSFORMER 1, 2, 3, & 4 REPLACEMENTS	ORIGINATING DEPARTMENT: SUBSTATION ENGINEERING AND DESIGN	SPONSOR:FOIL063066 JOHN E. GAVIN

2

**LSL****Life Science Laboratories, Inc.**

Richard Fox
National Grid
7437 Henry Clay Blvd
Liverpool, NY 13088 USA

Phone: (315) 460-2385

Authorization: PO #3200036458 Waste

Laboratory Analysis Report

Prepared For

National Grid

LSL Project ID: 1414497

Receive Date/Time: 09/09/14 14:10

Life Science Laboratories, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose. By the Client's acceptance and/or use of this report, the Client agrees that LSL is hereby released from any and all liabilities, claims, damages or causes of action affecting or which may affect the Client as regards to the results contained in this report. The Client further agrees that the only remedy available to the Client in the event of proven non-conformity with the above warranty shall be for LSL to re-perform the analytical test(s) at no charge to the Client. The data contained in this report are for the exclusive use of the Client to whom it is addressed, and the release of these data to any other party, or the use of the name, trademark or service mark of Life Science Laboratories, Inc. especially for the use of advertising to the general public, is strictly prohibited without express prior written consent of Life Science Laboratories, Inc. This report may only be reproduced in its entirety. No partial duplication is allowed. The Chain of Custody and the Sample Receipt documents submitted with these samples are considered by LSL to be an appendix of this report and may contain specific information that pertains to the samples included in this report. The analytical result(s) in this report are only representative of the sample(s) submitted for analysis. LSL makes no claim of a sample's representativeness, or integrity, if sampling was not performed by LSL personnel.

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This report was reviewed by:



Date:

9/23/14

David J. Prichard, Director of Tech. Services

A copy of this report was sent to: Ryan Harrington

Page 1 of 5

Date Printed:

9/19/14

FOIL063068

-- LABORATORY ANALYSIS REPORT --

National Grid Liverpool, NY

Sample ID: TB 1 of 1

LSL Sample ID: 1414497-001

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	9.5 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	98 %R		9/15/14	9/17/14	CRT

Sample ID: TB 1 of 2

LSL Sample ID: 1414497-002

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	7.0 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	90 %R		9/15/14	9/17/14	CRT

Sample ID: TB 1 of 3

LSL Sample ID: 1414497-003

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	8.1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	19 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	106 %R		9/15/14	9/17/14	CRT

Analysis performed at: (1) LSL Central Lab, (2) LSL North Lab, (3) LSL Finger Lakes Lab

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Page 2 of 5

Date Printed: 9/19/14

FOIL063069

-- LABORATORY ANALYSIS REPORT --

National Grid Liverpool, NY

Sample ID: TB 2 of 1

LSL Sample ID: 1414497-004

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Prep Method	Prep	Analysis	Analyst
Analyte	Result Units	Date	Date & Time	Initials
(1) EPA 8082A PCBs	EPA 3580A			
Aroclor-1016	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1260	1.2 mg/kg	9/15/14	9/17/14	CRT
Surrogate (DCB)	101 %R	9/15/14	9/17/14	CRT

Sample ID: TB 2 of 2

LSL Sample ID: 1414497-005

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Prep Method	Prep	Analysis	Analyst
Analyte	Result Units	Date	Date & Time	Initials
(1) EPA 8082A PCBs	EPA 3580A			
Aroclor-1016	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1260	<1 mg/kg	9/15/14	9/17/14	CRT
Surrogate (DCB)	103 %R	9/15/14	9/17/14	CRT

Sample ID: TB 2 of 3

LSL Sample ID: 1414497-006

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Prep Method	Prep	Analysis	Analyst
Analyte	Result Units	Date	Date & Time	Initials
(1) EPA 8082A PCBs	EPA 3580A			
Aroclor-1016	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg	9/15/14	9/17/14	CRT
Aroclor-1260	<1 mg/kg	9/15/14	9/17/14	CRT
Surrogate (DCB)	102 %R	9/15/14	9/17/14	CRT

Analysis performed at: (1) LSL Central Lab, (2) LSL North Lab, (3) LSL Finger Lakes Lab

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9/19/14

FOIL063070

-- LABORATORY ANALYSIS REPORT --

National Grid Liverpool, NY

Sample ID: TB 3 of 1

LSL Sample ID: 1414497-007

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	5.0 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	98 %R		9/15/14	9/17/14	CRT

Sample ID: TB 3 of 2

LSL Sample ID: 1414497-008

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	5.0 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	112 %R		9/15/14	9/17/14	CRT

Sample ID: TB 3 of 3

LSL Sample ID: 1414497-009

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	<1 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	97 %R		9/15/14	9/17/14	CRT

Analysis performed at: (1) LSL Central Lab, (2) LSL North Lab, (3) LSL Finger Lakes Lab

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Date Printed: 9/19/14

FOIL063071

-- LABORATORY ANALYSIS REPORT --

National Grid Liverpool, NY

Sample ID: TB 4 of 1

LSL Sample ID: 1414497-011

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	9.0 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	107 %R		9/15/14	9/17/14	CRT

Sample ID: TB 4 of 2

LSL Sample ID: 1414497-012

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	7.2 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	92 %R		9/15/14	9/17/14	CRT

Sample ID: TB 4 of 3

LSL Sample ID: 1414497-013

Location:

Sampled: 09/09/14 13:00

Sampled By: RH

Sample Matrix: SHW as Recd, Oil

Analytical Method	Result	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
Analyte	Units				
(1) EPA 8082A PCBs		EPA 3580A			
Aroclor-1016	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1221	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1232	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1242	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1248	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1254	<1 mg/kg		9/15/14	9/17/14	CRT
Aroclor-1260	8.2 mg/kg		9/15/14	9/17/14	CRT
Surrogate (DCB)	94 %R		9/15/14	9/17/14	CRT

Analysis performed at: (1) LSL Central Lab, (2) LSL North Lab, (3) LSL Finger Lakes Lab

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rptC002

Life Science Laboratories, Inc.

Date Printed: 9/19/14

FOIL063072

LSL

Life Science Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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1414497
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2693

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Report Address:Name: **Richard T. Fox**Company: **National Grid**Street: **7437 Henry Clay Blvd.**City/State: **Liverpool, NY**Phone: **315-546-4011**Email: **richard.fox@nationalgrid.com**Zip: **13088**

Fax:

Client Project ID/Client Site ID

Turnaround Time (Business Day)

Normal

10 DAY

Pre-Authorized

Next Day*

2-Day *

3-Day *

7-Day *

*Additional Charges
may apply**Date Needed or Special Instructions:**NonMVA ☐MVA ☐Waste ☒Hydraulic ☐

Authorization or P.O. #

LSL Project Number:

Client's Sample Identifications	Sample Date	Sample Time	Type grab/comp	Matrix	Preserv Added	Containers		Analyses	Preserv Check	LSL ID#
						#	size/type			
TB 101	9/9/14	1300	Grab	oil		1	8ml	PCB		001
102										002
103										003
TB 201										004
202										005
203										006
TB 301										007
302										008
303										009
										010

LSL use only:

Sampled By: **Ry + W**
Relinquished By:
Relinquished By: **Ry + W**
Shipment Method:

Custody Transfers

Received By:

Received By:

Rec'd for Lab By:

Received intact: **Y N**

Date

Time

9/9/14 13:00

9-9-14 14:10

Sample Temp

Containers this C-O-C

*** All areas of this Chain of Custody Record MUST be filled out in order to process samples in a timely manner IN PEN ***

NGrid Fox

2010063073



Life Science Laboratories, Inc.
CHAIN OF CUSTODY RECORD

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Fax: (585) 968-0906
Email: lslstl@lsi-inc.com

1414497
NGRID_Fox
2693
Fax: (585) 396-0377
Email: lsml@lsl-inc.com

[illegible]

Life Science Laboratories, Inc.

Sample Receipt Checklist

LSL LIMS

Project ID 1414497

Client ID: NGRID_Fox

Shipment Number 1

Completed By: hmgadmin

Date: 9/10/2014 12:43:42 P

DateReceived	ReceivedBy	Carrier	ShippingID
9/9/2014 2:10:00 PM	gis1	Hand Delivered	
Shipping container/cooler in good condition?	Yes	Sample containers intact?	Yes
Custody seal intact on shipping container/cooler?	N/A	Sufficient sample volume for indicated test?	Yes
Custody seals intact on sample bottles?	N/A	All samples received within holding time?	Yes
Chain of Custody present?	Yes	Container/Temp Blank temperature in compliance?	No
COC signed when relinquished and received?	Yes	Water - VOA vials have zero headspace?	N/A
COC agrees with sample labels?	Yes	Water - pH acceptable upon receipt?	N/A
Samples in proper containers/bottles?	Yes	Water - HNO3 added to unpreserved metal sample(s) to a pH of <2?	N/A

Comments:

Client is aware of Temp. and would like to proceed with analysis.

Corrective Action:

Reviewed By:



Printed: Wednesday, September 10, 2014

Page 1 of 1

FOIL063075

3

SUBSURFACE INVESTIGATION SERVICES

**National Grid
Teal Avenue Substation
Syracuse, New York**

OP-TECH Project No.: 87662

Prepared for:

National Grid
7437 Henry Clay Blvd
Liverpool, New York 13088

Prepared by:

OP-TECH ENVIRONMENTAL SERVICES, INC.
6392 Deere Road
Syracuse, New York 13206

November 2015



Table of Contents

1.0	INTRODUCTION	1
2.0	INVESTIGATION LOCATIONS	1
3.0	SUBSURFACE SOIL INVESTIGATION	1
5.0	CONCLUSION	3

Attachments:

- Exhibit A: Selected Project Photographs
- Exhibit B: Analytical Summary
- Exhibit C: Laboratory Analytical Results and Chain of Custody Documentation

SUBSURFACE INVESTIGATION SERVICES

Teal Ave Substation, Syracuse New York

OP-TECH Project No.: 87662

1.0 INTRODUCTION

OP-TECH ENVIRONMENTAL SERVICES, INC. (OP-TECH) provided subsurface investigation services for at the National Grid Teal Ave. Substation in Syracuse, New York. The referenced services were requested by Mr. Richard Fox. The services provided by OP-TECH, on October 2, 2015, included the advancement of two Geoprobe borings and the environmental monitoring and sampling of the subsurface soil.

The associated investigation services were conducted in anticipation of future Substation upgrades. The purpose was to evaluate the soil for potential reuse on the property during future excavation and upgrade work.

2.0 INVESTIGATION LOCATIONS

The referenced property is located off of Teal Avenue in Syracuse, Onondaga County, New York. Two borings were installed at the Substation adjacent to Substation Unit R25 and R45 respectively. Photos describing the general vicinity and location of the borings have been included as **Exhibit A**.

3.0 SUBSURFACE SOIL INVESTIGATION

OP-TECH provided a Geoprobe direct push soil probing rig for the subsurface excavation activities on October 2, 2015. The two soil borings were installed to 16 feet below ground surface (bgs) in the location of Units R25 and R45. Soil samples were collected every 4ft, screened in the field, and then samples were collected and submitted for laboratory analysis.

Soil in the location of the borings consisted of primarily clay with varying amounts of sand and gravel. No groundwater was observed in the boring at the time of the investigation.

4.2 Soil Boring Monitoring

Soil samples were collected during the investigation activities by representatives of OP-TECH. Soil samples were examined for characteristic petroleum staining and odors and screened for the presence of volatile organic compounds (VOC), using a calibrated photo-ionization detector (PID), equipped with a 10.6 eV lamp.

The PID screening was performed using direct screening methods with the PID to provide a general indication of VOC concentrations released from the soil boring. The soil samples exhibited no indication

of noticeable soil staining, petroleum odors or measurable PID readings. After collecting samples for laboratory analysis, OP-TECH backfilled the borings with the previously removed soil cuttings.

4.2 Analytical Sampling

The soil samples were collected in the appropriate glassware with sufficient ice and packaging provided in the cooler prior to shipment to the laboratory. The soil samples and associated sample custody documentation were sent to Paradigm Environmental Services, (NYSDOH ELAP No. 10958) in Rochester, New York, for RCRA Metals analysis, via EPA Method 6010C, PCBs via EPA Method 8082, and Petroleum Hydrocarbons, specifically Mineral Oil. Soils were collected from each sampling interval at each boring location, and therefore a total of 8 soils samples were collected and submitted for laboratory analysis. A summary of the samples collected and their rationale is provided below:

Sample Name	Sampling interval
SB-25 (Surface)	Sample collected from 0ft-4ft bgs
SB-25 (4ft bgs)	Sample collected from 4ft-8ft bgs
SB-25 (8ft bgs)	Sample collected from 8ft-12ft bgs
SB-25 (12ft bgs)	Sample collected from 12ft-16ft bgs
SB-45 (Surface)	Sample collected from 0ft-4ft bgs
SB-45 (4ft bgs)	Sample collected from 4ft-8ft bgs
SB-45 (8ft bgs)	Sample collected from 8ft-12ft bgs
SB-45 (12ft bgs)	Sample collected from 12ft-16ft bgs

4.2 Analytical Results

No PCBs were detected in any of the samples collected. RCRA metals and mineral oil were detected in the majority of samples submitted for laboratory analysis. A complete summary of detections is attached as **Exhibit B**. Copies of the Laboratory Results and Sample Custody Documentation are attached as **Exhibit C**.

The analytical results were compared to the NYSDEC Subpart 375-6, Remedial Program Soil Cleanup Objectives (RPSCO) for Industrial Use as an indication of the observed RCRA metal concentrations detected in the soil. All results were below the standards outlined in Part 375-6, with the exception of the SB-45 Surface Sample. Concentrations in the location of SB-45 from 0ft to 4ft bgs exceeded the arsenic regulatory limit for industrial use. A complete summary of detections is attached as **Exhibit B**.

The analytical results for mineral oil were compared to an industry standard of 10ppm, as there are regulatory concentrations published. Seven (7) out of eight (8) samples contained concentrations of mineral oil above 10ppm. SB-45 Surface Sample contained concentration of mineral oil less than 10ppm. A complete summary of detections is attached as **Exhibit B**.

5.0 CONCLUSION

The soil samples collected from each boring location exhibited no indication of noticeable soil staining, petroleum odors or measurable PID readings. PCBs were not detected in any of the samples sent for laboratory analysis. All samples with the exception of SB-45 Surface Sample exhibited mineral oil concentrations above the industry standard of 10ppm. Only one sample (SB-45 Surface Sample) exhibited concentrations of RCRA metals (specifically arsenic) above regulatory limits.

If you have any questions, please contact our Syracuse Branch Office at (315) 463-1643.

Respectfully Submitted,
OP-TECH ENVIRONMENTAL SERVICES, INC.

Tyson Garvey
Branch Manager
DB/TG

EXHIBIT A

SITE PHOTOGRAPHS

SELECT SITE PHOTOGRAPHS
TEAL AVE SUB-STATION – SUBSURFACE INVESTIGATION
Syracuse, New York
OP-TECH Project No.: 87662



EXHIBIT B

SAMPLE DETECTION SUMMARY

National Grid Soil Analysis Sample Summary

Analyte	Units	Subpart 375 Industrial Standards	Industry Standard (no regulatory limits published)	SB-25 (Surface)	SB-25 (4ft bgs)	SB-25 (8ft bgs)	SB-25 (12ft bgs)	SB-45 (Surface)	SB-45 (4ft bgs)	SB-45 (8ft bgs)	SB-45 (12ft bgs)
Mercury Via EPA Method 7471B											
Mercury	mg/Kg	5.7	NA	0.0467	0.0314	<0.00838	<0.0100	0.0447	0.0196	0.0209	0.0126
RCRA Metals Via EPA 6010C											
Arsenic	mg/Kg	16	NA	3.54	3.45	3.77	1.15	19	3.51	4.89	2.38
Barium	mg/Kg	10,000	NA	70	79.7	92.6	21.5	117	75.6	40.9	32.9
Cadmium	mg/Kg	60	NA	0.667	<0.289	<0.305	<0.310	8.03	0.754	1.01	<0.293
Chromium (total)	mg/Kg	800	NA	15.6	19.8	21	8.88	15	18.1	11.7	10.9
Lead	mg/Kg	3900	NA	170	7.6	20.1	4.55	36	38.1	134	12.4
Selenium	mg/Kg	6800	NA	<0.562	<1.74	<0.610	<0.621	<0.570	<0.574	<0.603	<0.586
Silver	mg/Kg	6800	NA	<0.562	<0.579	<0.610	<0.621	<0.570	<0.574	<0.603	<0.586
PCBs via EPA Method 8082											
PCB-1016	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1221	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1232	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1242	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1248	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1254	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1260	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1262	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
PCB-1268	mg/Kg	1	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Petroleum Hydrocarbons by GC											
Mineral Oil	mg/Kg	NA	10	353**	447**	834**	1020**	<8.31	459**	736**	887**

Notes:

Bold- indicates soil concentrations above the Subpart 375 Remedial Program Soil Cleanup Objectives for Industrial Use

******-indicates analytical results which exceed 10ppm. (Please note that there are no published regulatory objectives for Mineral Oil, but the results were compared to an industry standard of 10ppm)

EXHIBIT C

LABORATORY DATA AND CHAIN OF CUSTODY DOCUMENTATION



PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report For
OP-TECH Environmental Services, Inc.

For Lab Project ID

154220

Referencing

Teall Ave Substation Syracuse, NY

Prepared

Tuesday, October 20, 2015

Any noncompliant QC parameters or other notes impacting data interpretation are flagged or documented on the final report or are noted below.

A handwritten signature in black ink, consisting of several overlapping, stylized strokes, is positioned above a horizontal line.

Certifies that this report has been approved by the Technical Director or Designee

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

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Report Prepared Tuesday, October 20, 2015

FOIL063087



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-Surface

Lab Sample ID: 154220-01

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0467	mg/Kg		10/8/2015 12:43
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	3.54	mg/Kg		10/9/2015 16:46
Barium	70.0	mg/Kg		10/9/2015 16:46
Cadmium	0.667	mg/Kg		10/9/2015 16:46
Chromium	15.6	mg/Kg		10/9/2015 16:46
Lead	170	mg/Kg		10/9/2015 16:46
Selenium	< 0.562	mg/Kg		10/9/2015 16:46
Silver	< 0.562	mg/Kg		10/9/2015 16:46
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1221	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1232	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1242	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1248	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1254	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1260	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1262	< 0.100	mg/Kg		10/17/2015 14:04
PCB-1268	< 0.100	mg/Kg		10/17/2015 14:04

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Report Prepared Tuesday, October 20, 2015



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-Surface

Lab Sample ID: 154220-01

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	66.1	19.4 - 148		10/17/2015 14:04
Tetrachloro-m-xylene	36.8	0 - 156		10/17/2015 14:04

Method Reference(s): EPA 8082A
EPA 3550C
Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	353	mg/Kg		10/7/2015 19:44

Method Reference(s): NYSDOH 310.13
Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: OP-TECH Environmental Services, Inc.

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-4'

Lab Sample ID: 154220-02

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0314	mg/Kg		10/8/2015 12:46
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	3.45	mg/Kg		10/9/2015 16:50
Barium	79.7	mg/Kg		10/9/2015 16:50
Cadmium	< 0.289	mg/Kg		10/9/2015 16:50
Chromium	19.8	mg/Kg		10/9/2015 16:50
Lead	7.60	mg/Kg		10/9/2015 16:50
Selenium	< 1.74	mg/Kg		10/12/2015 15:22
Silver	< 0.579	mg/Kg		10/9/2015 16:50
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1221	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1232	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1242	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1248	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1254	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1260	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1262	< 0.100	mg/Kg		10/17/2015 14:27
PCB-1268	< 0.100	mg/Kg		10/17/2015 14:27

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Report Prepared Tuesday, October 20, 2015

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Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-4'

Lab Sample ID: 154220-02

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	61.1	19.4 - 148		10/17/2015 14:27
Tetrachloro-m-xylene	29.7	0 - 156		10/17/2015 14:27

Method Reference(s): EPA 8082A

EPA 3550C

Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	447	mg/Kg		10/7/2015 20:27

Method Reference(s): NYSDOH 310.13

Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-8'

Lab Sample ID: 154220-03

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	< 0.00838	mg/Kg		10/8/2015 12:49
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	3.77	mg/Kg		10/9/2015 16:55
Barium	92.6	mg/Kg		10/9/2015 16:55
Cadmium	< 0.305	mg/Kg		10/9/2015 16:55
Chromium	21.0	mg/Kg		10/9/2015 16:55
Lead	20.1	mg/Kg		10/9/2015 16:55
Selenium	< 0.610	mg/Kg		10/9/2015 16:55
Silver	< 0.610	mg/Kg		10/9/2015 16:55
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1221	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1232	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1242	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1248	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1254	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1260	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1262	< 0.100	mg/Kg		10/17/2015 14:50
PCB-1268	< 0.100	mg/Kg		10/17/2015 14:50



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-8'

Lab Sample ID: 154220-03

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	72.8	19.4 - 148		10/17/2015 14:50
Tetrachloro-m-xylene	34.6	0 - 156		10/17/2015 14:50

Method Reference(s): EPA 8082A
EPA 3550C
Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	834	mg/Kg		10/7/2015 21:10

Method Reference(s): NYSDOH 310.13
Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-12'

Lab Sample ID: 154220-04

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	< 0.0100	mg/Kg		10/8/2015 12:53
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	1.15	mg/Kg		10/9/2015 16:59
Barium	21.5	mg/Kg		10/9/2015 16:59
Cadmium	< 0.310	mg/Kg		10/9/2015 16:59
Chromium	8.88	mg/Kg		10/9/2015 16:59
Lead	4.55	mg/Kg		10/9/2015 16:59
Selenium	< 0.621	mg/Kg		10/9/2015 16:59
Silver	< 0.621	mg/Kg		10/9/2015 16:59
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1221	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1232	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1242	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1248	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1254	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1260	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1262	< 0.100	mg/Kg		10/17/2015 15:13
PCB-1268	< 0.100	mg/Kg		10/17/2015 15:13



PARADIGM

ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R25-12'

Lab Sample ID: 154220-04

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	63.2	19.4 - 148		10/17/2015 15:13
Tetrachloro-m-xylene	30.7	0 - 156		10/17/2015 15:13

Method Reference(s): EPA 8082A

EPA 3550C

Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	1020	mg/Kg		10/7/2015 21:53

Method Reference(s): NYSDOH 310.13

Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-Surface

Lab Sample ID: 154220-05

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0447	mg/Kg		10/8/2015 12:56
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	19.0	mg/Kg		10/9/2015 17:04
Barium	117	mg/Kg		10/9/2015 17:04
Cadmium	8.03	mg/Kg		10/9/2015 17:04
Chromium	15.0	mg/Kg		10/9/2015 17:04
Lead	36.0	mg/Kg		10/9/2015 17:04
Selenium	< 0.570	mg/Kg		10/9/2015 17:04
Silver	< 0.570	mg/Kg		10/9/2015 17:04
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1221	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1232	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1242	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1248	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1254	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1260	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1262	< 0.100	mg/Kg		10/17/2015 15:36
PCB-1268	< 0.100	mg/Kg		10/17/2015 15:36

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PARADIGM

ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-Surface

Lab Sample ID: 154220-05

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	72.1	19.4 - 148		10/17/2015 15:36
Tetrachloro-m-xylene	38.8	0 - 156		10/17/2015 15:36

Method Reference(s): EPA 8082A

EPA 3550C

Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	< 8.31	mg/Kg		10/8/2015 00:02

Method Reference(s): NYSDOH 310.13

Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-4'

Lab Sample ID: 154220-06

Matrix: Soil

Date Sampled: 10/2/2015

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0196	mg/Kg		10/8/2015 12:59
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	3.51	mg/Kg		10/9/2015 17:08
Barium	75.6	mg/Kg		10/9/2015 17:08
Cadmium	0.754	mg/Kg		10/9/2015 17:08
Chromium	18.1	mg/Kg		10/9/2015 17:08
Lead	38.1	mg/Kg		10/9/2015 17:08
Selenium	< 0.574	mg/Kg		10/9/2015 17:08
Silver	< 0.574	mg/Kg		10/9/2015 17:08
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1221	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1232	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1242	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1248	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1254	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1260	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1262	< 0.100	mg/Kg		10/17/2015 15:59
PCB-1268	< 0.100	mg/Kg		10/17/2015 15:59

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Report Prepared Tuesday, October 20, 2015

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10/20/2015 10:30:98



PARADIGM

ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-4'

Lab Sample ID: 154220-06

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	59.4	19.4 - 148		10/17/2015 15:59
Tetrachloro-m-xylene	30.8	0 - 156		10/17/2015 15:59
Method Reference(s):	EPA 8082A			
	EPA 3550C			
Preparation Date:	10/14/2015			

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	459	mg/Kg		10/8/2015 00:45

Method Reference(s): NYSDOH 310.13

Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-8'

Lab Sample ID: 154220-07

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0209	mg/Kg		10/8/2015 13:03
Method Reference(s):	EPA 7471B			
Preparation Date:	10/7/2015			
Data File:	Hg151008B			

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	4.89	mg/Kg		10/9/2015 17:21
Barium	40.9	mg/Kg		10/9/2015 17:21
Cadmium	1.01	mg/Kg		10/9/2015 17:21
Chromium	11.7	mg/Kg		10/9/2015 17:21
Lead	134	mg/Kg		10/9/2015 17:21
Selenium	< 0.603	mg/Kg		10/9/2015 17:21
Silver	< 0.603	mg/Kg		10/9/2015 17:21
Method Reference(s):	EPA 6010C			
	EPA 3050			
Preparation Date:	10/9/2015			
Data File:	100915b			

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1221	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1232	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1242	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1248	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1254	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1260	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1262	< 0.100	mg/Kg		10/17/2015 16:22
PCB-1268	< 0.100	mg/Kg		10/17/2015 16:22

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

Report Prepared Tuesday, October 20, 2015



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-8'

Lab Sample ID: 154220-07

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	55.0	19.4 - 148		10/17/2015 16:22
Tetrachloro-m-xylene	30.3	0 - 156		10/17/2015 16:22

Method Reference(s): EPA 8082A
EPA 3550C
Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	736	mg/Kg		10/8/2015 01:28

Method Reference(s): NYSDOH 310.13
Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-12'

Lab Sample ID: 154220-08

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	0.0126	mg/Kg		10/9/2015 13:06

Method Reference(s): EPA 7471B

Preparation Date: 10/7/2015

Data File: Hg151008B

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	2.38	mg/Kg		10/9/2015 17:25
Barium	32.9	mg/Kg		10/9/2015 17:25
Cadmium	< 0.293	mg/Kg		10/9/2015 17:25
Chromium	10.9	mg/Kg		10/9/2015 17:25
Lead	12.4	mg/Kg		10/9/2015 17:25
Selenium	< 0.586	mg/Kg		10/9/2015 17:25
Silver	< 0.586	mg/Kg		10/9/2015 17:25

Method Reference(s): EPA 6010C

EPA 3050

Preparation Date: 10/9/2015

Data File: 100915b

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1221	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1232	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1242	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1248	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1254	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1260	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1262	< 0.100	mg/Kg		10/17/2015 16:45
PCB-1268	< 0.100	mg/Kg		10/17/2015 16:45

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

Report Prepared Tuesday, October 20, 2015



Lab Project ID: 154220

Client: **OP-TECH Environmental Services, Inc.**

Project Reference: Teall Ave Substation Syracuse, NY

Sample Identifier: R45-12'

Lab Sample ID: 154220-08

Date Sampled: 10/2/2015

Matrix: Soil

Date Received: 10/6/2015

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Decachlorobiphenyl	63.1	19.4 - 148		10/17/2015 16:45
Tetrachloro-m-xylene	33.9	0 - 156		10/17/2015 16:45

Method Reference(s): EPA 8082A

EPA 3550C

Preparation Date: 10/14/2015

Petroleum Hydrocarbons by GC

Analyte	Result	Units	Qualifier	Date Analyzed
Mineral Oil	887	mg/Kg		10/8/2015 02:11

Method Reference(s): NYSDOH 310.13

Preparation Date: 10/7/2015

ELAP does not offer this test for approval as part of their laboratory certification program.



Analytical Report Appendix

The reported results relate only to the samples as they have been received by the laboratory.

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All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

Low level Volatiles blank reports for soil/solid matrix are based on a nominal 5 gram weight. Sample results and reporting limits are based on actual weight, which may be more or less than 5 grams.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of analyte-specific, frequently used data flags and their meaning:

"<" = Analyzed for but not detected at or above the quantitation limit.

"E" = Result has been estimated, calibration limit exceeded.

"Z" = See case narrative.

"D" = Sample, Laboratory Control Sample, or Matrix Spike Duplicate results above Relative Percent Difference limit.

"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

"J" = Result estimated between the quantitation limit and half the quantitation limit.

"L" = Laboratory Control Sample recovery outside accepted QC limits.

"P" = Concentration differs by more than 40% between the primary and secondary analytical columns.

"NC" = Not calculable. Applicable to RPD if sample or duplicate result is non-detect or estimated (see primary report for data flags). Applicable to MS if sample is greater or equal to ten times the spike added. Applicable to sample surrogates or MS if sample dilution is 10x or higher.

"" = Indicates any recoveries outside associated acceptance windows. Surrogate outliers in samples are presumed matrix effects. LCS demonstrates method compliance unless otherwise noted.*

"(1)" = Indicates data from primary column used for QC calculation.

"A" = denotes a parameter for which ELAP does not offer approval as part of their laboratory certification program.

"F" = denotes a parameter for which Paradigm does not carry certification, the results for which should therefore only be used where ELAP certification is not required, such as personal exposure assessment.

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

GENERAL TERMS AND CONDITIONS

LABORATORY SERVICES

These Terms and Conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, term, or condition hereof shall not affect in any way the validity or enforceability of the remainder of the Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty.

Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation.

LAB agrees to perform the services described in the chain of custody to which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described. LAB will use LAB default method for all tests unless specified otherwise on the Work Order.

Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices.

Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on quotations agreed to in writing by the parties. Turnaround time based charges are determined from the time of resolution of all work order questions. Testimony, court appearances or data compilation for legal action will be charged separately. Evaluation and reporting of initial screening runs may incur additional fees.

Limitations of Liability.

In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.

LAB shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to LAB's services or results.

All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All reports should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these reports. Client may not assign the lab report without the written consent of the LAB.

Client covenants and agrees, at its/his/her sole expense, to indemnify, protect, defend, and save harmless the LAB from and against any and all damages, losses, liabilities, obligations, penalties, claims, litigation, demands, defenses, judgments, suits, actions, proceedings, costs, disbursements and/or expenses (including, without limitation attorneys' and experts' fees and disbursements) of any kind whatsoever which may at any time be imposed upon, incurred by or asserted or awarded against client relating to, resulting from or arising out of (a) the breach of this agreement by this client, (b) the negligence of the client in handling, delivering or disclosing any hazardous substance, (c) the violation of the Client of any applicable law, (d) non-compliance by the Client with any environmental permit or (e) a material misrepresentation in disclosing the materials to be tested.

Hazard Disclosure.

Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspected by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling.

Prior to LAB's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivering any sample to or from LAB premises. Client authorizes LAB to proceed with the analysis of samples as received by the laboratory, recognizing that any samples not in compliance with all current DOH-ELAP-NELAP requirements for containers, preservation or holding time will be noted as such on the final report.

Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.

LAB reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility.

LAB is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment.

LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure.

LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from LAB's usual suppliers, or any other cause beyond LAB's reasonable control.

This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

OP-TECH

Environmental Services

CHAIN OF CUSTODY RECORD

1062

Client Information										Purchase Number														
Company National Grid					Contact Richard Fox					P.O. #87662														
Address 7437 Henry Clay Blvd					City, State, Zip Liverpool, NY 13088					154220														
Phone 315-460-2334			Fax 315-460-2387		Email richard.fox@nationalgrid.com					Site Address														
OP-TECH Contact Information																								
Company OP-TECH ENVIRONMENTAL SERVICES					Contact Tyson M. Garvey					Teall Ave Substation														
Address 6392 DEERE ROAD					City, State, Zip SYRACUSE, NY 13206					Syracuse, NY														
Phone 315-463-1643			Fax 315-463-9764		Email tgarvey@nrcc.com																			
Turn Around Time		Matrix Codes				Remarks/Special Instructions		Container Type/Preservative						Analysis Requested										
2 WEEK TAT		DW — Drinking Water				Please email both Rich and Tyson analysis results		Number of Containers	Plastic / No Preservatives	Plastic / HNO ₃	Plastic / H ₂ SO ₄	Plastic / NaOH + Asc. Acid	Plastic/Glass / Na ₂ S ₂ O ₃	Glass / No Preservatives	Glass / H ₂ SO ₄	VOA / HCl	Other:	TCLP Metals - TOTALS ONLY	PCBs (0.1 ppm Detection Limit)	310.13 (Minced Oil)				
		GW — Ground Water																						
		OL — Oil																						
		PC — Paint Chips																						
		PR — Product																						
		SD — Soil/Sludge/Solid																						
		SW — Surface Water																						
		WW — Waste Water																						
Lab Use Only	Date	Time	Cmp	Grb	Mtx	Sampling Location/Sample ID																		
	10/02/15	11:14	X		SD	R25- Surface		2						X				X	X	X				01
	10/02/15	11:10	X		SD	R25- 4'		2						X				X	X	X				02
	10/02/15	11:35	X		SD	R25- 8'		2						X				X	X	X				03
	10/02/15	11:55	X		SD	R25- 12'		2						X				X	X	X				04
	10/02/15	12:15	X		SD	R45- Surface		2						X				X	X	X				05
	10/02/15	12:33	X		SD	R45- 4'		2						X				X	X	X				06
	10/02/15	12:50	X		SD	R45- 8'		2						X				X	X	X				07
	10/02/15	13:08	X		SD	R45- 12'		2						X				X	X	X				08
Relinquished By: <i>Tyson M. Garvey</i>		Date 10-6-2015		Time 10:38		Received By: <i>David W. Dehn</i>		Date 10-8-15		Time 1038														
Relinquished By: <i>Shari Jackson</i>		Date 10-6-15		Time 10:38		Received By:		Date		Time														
Relinquished By:		Date		Time		Received By:		Date		Time														
Sampler Signature: <i>Tyson M. Garvey</i>		Date 10-2-15		Time 1308		Lab: Paradigm <i>Molybdenum</i>		Sample Receipt Temperature 6 °C																

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10/6/15 13:09
FOIL063106

2082



Chain of Custody Supplement

Client: OP Tech Completed by: Molly Vail
 Lab Project ID: 154220 Date: 10/6/15

Sample Condition Requirements Per NELAC/ELAP 210/241/242/243/244

Condition	Yes	No	N/A
Container Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments			
Transferred to method-compliant container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Headspace (<1 mL)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Comments			
Preservation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Comments			
Chlorine Absent (<0.10 ppm per test strip)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Comments			
Holding Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments			
Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Comments	<u>6°Ciced 10/6/15 1309</u>		
Sufficient Sample Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments			

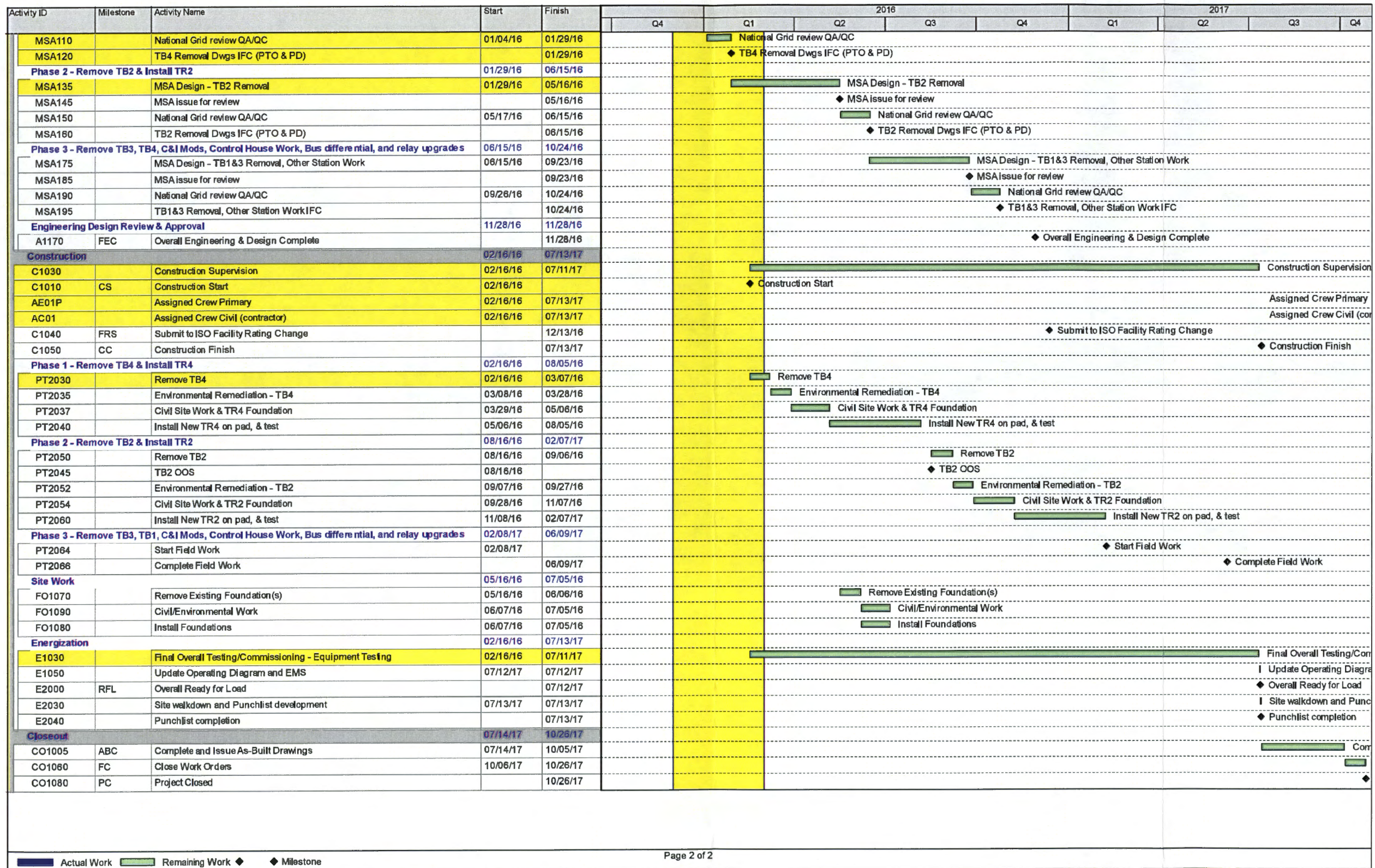
4

Activity ID	Milestone	Activity Name	Start	Finish	2016				2017							
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
TEALL AVE TRANSFORMER REPLACEMENT - C047865			01/06/14 A	10/26/17												
Project Admin			01/06/14 A	04/07/14 A												
PA1010	SA	Approval to Initiate Project		01/06/14 A												
PA1030	PRS	Approval to Start Preliminary Engineering		04/07/14 A												
Project Management Planning			04/07/14 A	01/26/17												
PMP1000	KOM	Kick-off Meeting	04/07/14 A													
PMP1010		Create Technical Scope Document (Steps)	04/07/14 A	09/12/14 A												
PMP1020	TRD	Technical Scope Document Approval		09/12/14 A												
PMP1030	PSE	Planning Estimate	09/15/14 A	10/15/14 A												
PMP2040		Start Long-Lead Procurement		11/05/14 A												
Project Sanction			11/02/15 A	01/26/17												
PMP3000		Prepare Project Sanction Paper	11/02/15 A	03/29/16												
PMP1060	FPE	Project Grade Estimate - Ph 1	02/01/16	02/29/16												
PMP3010		Pre-Sanction Meeting	03/30/16	03/30/16												
PMP3020		Sanction Paper Review	03/31/16	05/13/16												
PMP3030		Partial Sanction Approval		05/13/16												
PMP3040		Start General Procurement		05/13/16												
PMP1070	FPE	Project Grade Estimate - Ph 2	06/16/16	07/14/16												
PMP1080	FPE	Project Grade Estimate - Ph 3	10/25/16	11/22/16												
PMP1090	SPAP	Project Sanction Approval		01/26/17												
Engineering/Design Contract			06/15/15 A	07/17/15 A												
EDC1020		RFP Out For MSA Bidders	06/15/15 A	07/06/15 A												
EDC1030		Evaluate MSA Bids & Make Recommendations	07/07/15 A	07/17/15 A												
EDC1040		Award Contract to MSA		07/17/15 A												
Construction Contracts			02/01/16	02/29/16												
CC1000		Bid Construction Contracts	02/01/16	02/12/16												
CC1010		Review Construction Contracts	02/16/16	02/29/16												
CC1020		Award Construction Contracts (if needed)		02/29/16												
Permitting/Licensing/ROW			10/01/15 A	12/01/15												
P1000		Initiate Permitting - Environmental TBD	10/01/15 A													
P1050	APR	All Permits In-Hand		12/01/15												
Outage Planning			11/03/14 A	02/29/16												
OP1000		Project Outage Assessment/Restrictions - Draft Plan	11/03/14 A	12/03/14 A												
OP1010		Finalize Project Outage Plan	12/14/15*	01/27/16												
OP1020		Submit TOA's, Outage Requests to Power Control/Regional Control Center	01/28/16	02/25/16												
OP1030	OPA	Outages Approved by Power Control/Regional Control Center	02/26/16	02/29/16												
Engineering/Design			10/20/14 A	11/23/16												
ED0800		Site Visit/Construction schedule Development Meeting	07/09/15 A													
ED0900		Start Final Engineering and Design		07/20/15 A												
Procurement			10/20/14 A	11/08/16												
PT2096		Prepare RFP	10/20/14 A	11/05/14 A												
PT2106		RFP Out for Transformer Bidders	11/05/14 A	12/16/14 A												
PT2086		Prepare Procurement Specifications - Power Transformers		11/05/14 A												
PT2116		Evaluate Vendor Bids & Make Recommendations	12/17/14 A	02/08/15 A												
PT2126		Award Purchase Order to Transformer Vendor ABB		02/08/15 A												
PT2136		Nameplate & Outline Drawing Approval	06/01/15 A	06/18/15 A												
PT2146		Transformer Design Drawings Approval	08/03/15 A	08/05/15 A												
PT2156		Procurement Fabrication/Delivery - TR4	08/06/15 A	05/06/16												
PT2166		Procurement Fabrication/Delivery - TR2	08/06/15 A	11/08/16												
Phase 1 - Remove TB4 & Install TR4			07/09/15 A	01/29/16												
MSA100		MSA Design - TB4 Removal	07/09/15 A	12/31/15												
MSA105		MSA Issue to NG for Review		12/31/15												

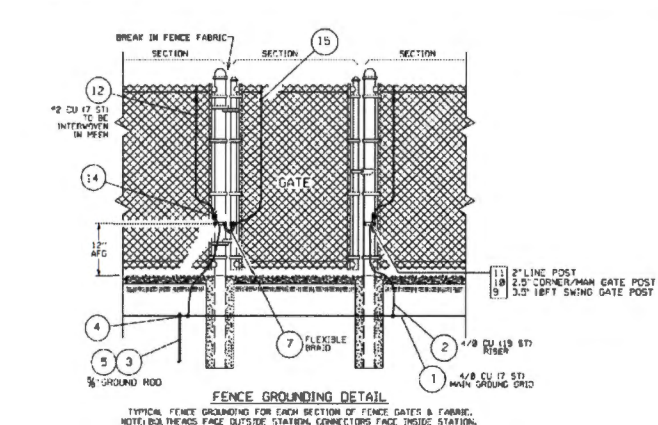
Actual Work Remaining Work Milestone

Page 1 of 2

 Actual Work
  Remaining Work
  Milestone



5



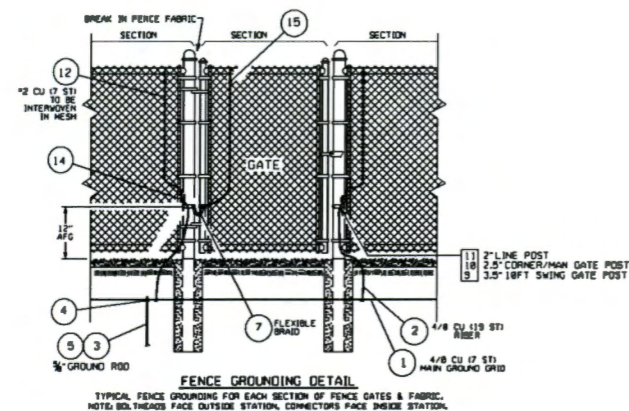
- GROUNDING NOTES:
1. ALL GROUND WIRE AND GROUND RODS SHALL BE A MINIMUM OF 1/4" BELOW FINISHED GRADE.
 2. GROUND WIRE RISERS SHALL BE 4"-8", UNLESS OTHERWISE NOTED.
 3. GROUND WIRE RISERS AT EQUALIZING/POTENTIAL GROUND MAT LOCATIONS SHALL BE 8"-10".
 4. INSTALL WIRE OR NEW GROUND RODS FOUR (4) FT. SECTIONS TO A DEPTH OF 25'-30'.
 5. THE GROUND GRID TO EXISTING COLUMNS WITHOUT AN EXISTING GROUND GRID CONNECTION.
 6. TIE NEW GROUND GRID TO THE EXISTING GROUND GRID AT LOCATIONS SHOWN.
 7. THE FENCE SHALL BE CONNECTED TO THE GROUND GRID AT EACH CORNER POST, GATE POST, GATE AND EVERY THIRD POST AT A MINIMUM.
 8. THE FIELD SHALL INSPECT FOR CONTINUITY AND INSTALL AS REQUIRED AN EQUALIZING/POTENTIAL GROUND MAT AT EACH SWITCH OPERATOR LOCATION.
 9. THE CONTROL HOUSE GROUND BUS SHALL BE CONNECTED TO THE NEW/EXISTING GROUND GRID AT A MINIMUM OF FOUR (4) LOCATIONS.

- GROUNDING SYMBOLS:
- - GROUND ROD LOCATION
 - - 4/0 TO 4/0 TEE/CROSS CONNECTION
 - NEW GROUND ROD INSTALLATION (NEAR ZERO)

[illegible]

CONFIDENTIALITY STATEMENT

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GROUNDING PLAN
SCALE: 1" = 20'-0"

GROUNDING NOTES:

1. ALL GROUND WIRE AND GROUND RODS SHALL BE A MINIMUM OF 1/2" BELOW FINISHED GRADE.
2. GROUND WIRE RISERS SHALL BE 4"-Ø, UNLESS OTHERWISE NOTED.
3. GROUND WIRE RISERS AT EQUALIZING/POTENTIAL GROUND MAT LOCATIONS SHALL BE 8"-Ø.
4. INSTALL NINE SIX INCH NEW GROUND RODS FOUR - 6 FT. SECTIONS TO A DEPTH OF 25'-Ø.
5. TIE GROUND GRID TO EXISTING COLUMNS WITHOUT AN EXISTING GROUND GRID CONNECTION.
6. TIE NEW GROUND GRID TO EXISTING GROUND GRID AT LOCATIONS SHOWN.
7. THE FENCE SHALL BE CONNECTED TO THE GROUND GRID AT EACH CORNER POST, GATE POST, GATE AND EVERY THIRD POST AT A MINIMUM.
8. THE FIELD SHALL INSPECT FOR CONTINUITY AND INSTALL AS REQUIRED AN EQUALIZING/POTENTIAL GROUND MAT AT EACH SWITCH OPERATOR LOCATION.
9. THE CONTROL BUILDING SHALL BE CONNECTED TO THE NEW/EXISTING GROUND GRID AT A MINIMUM OF FOUR (4) LOCATIONS.

GROUNDING SYMBOLS:

- - GROUND ROD LOCATION
- - 4/0 TO 4/0 TEE/CROSS CONNECTION
- - NEW GROUND GRID INSTALLATION (YEAR-2003)

PRELIMINARY

E.S.72

PREPARED BY:

nationalgrid

NMPC TEALL AVE STATION

115-34.5-13.2KV STATION

GROUNDING PLAN

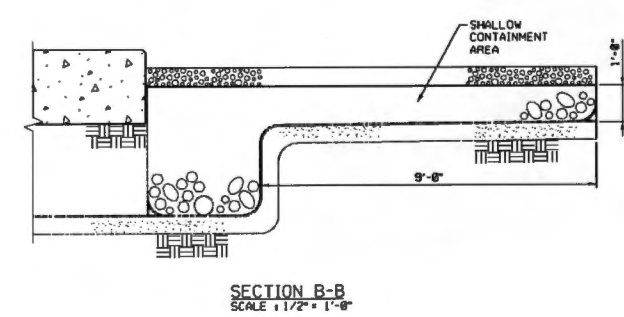
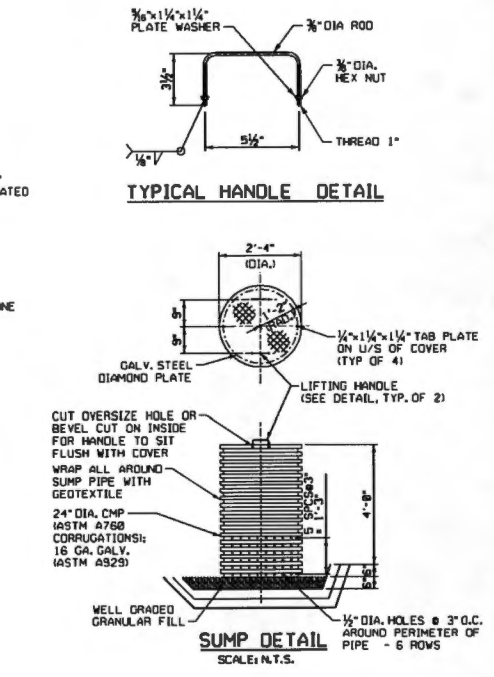
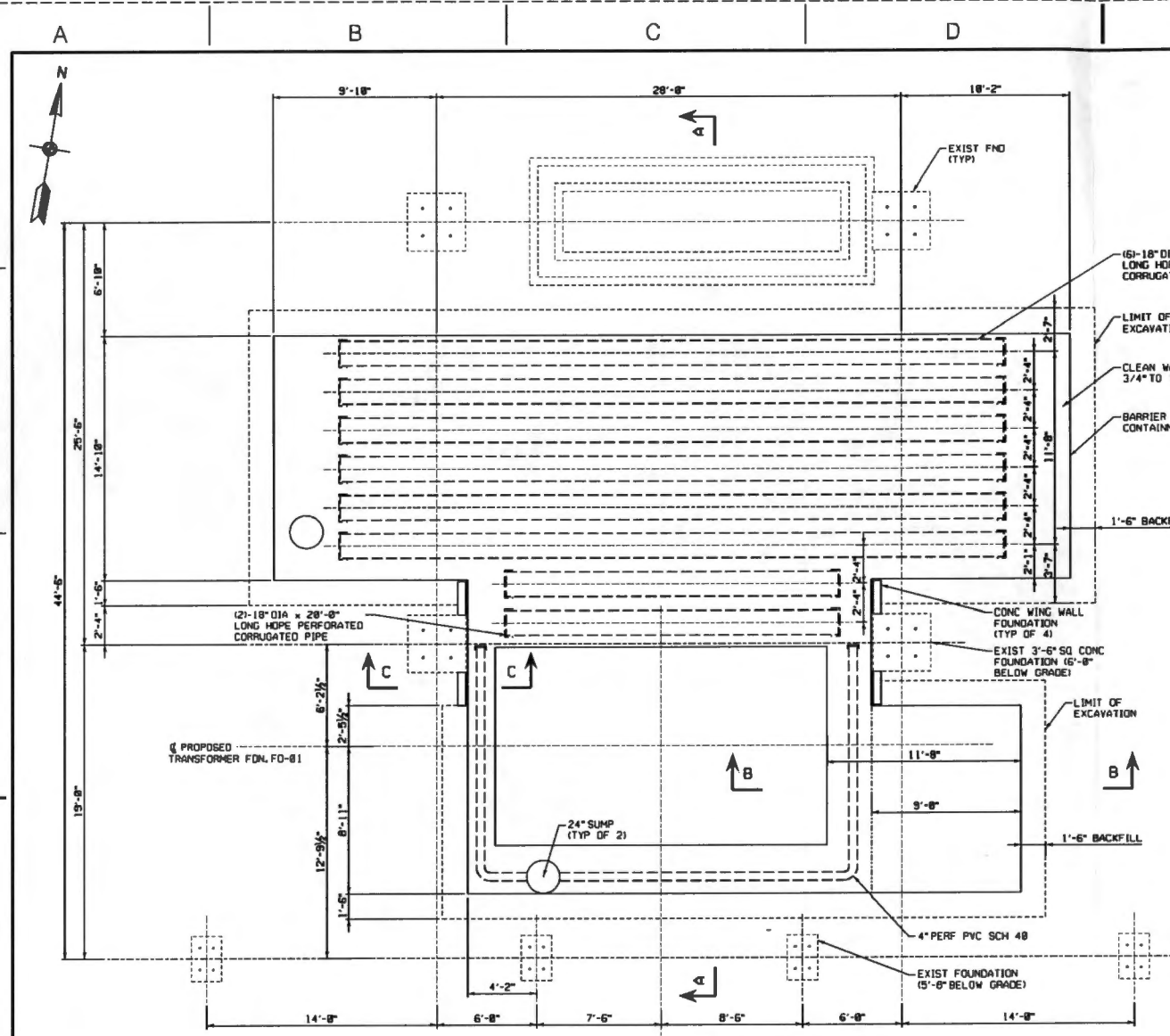
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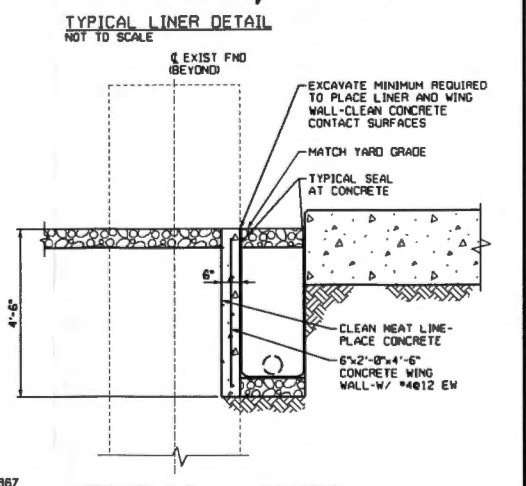
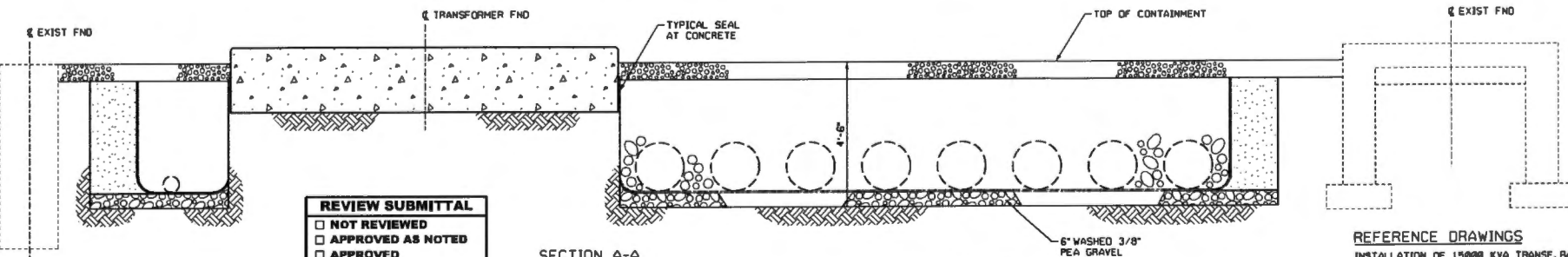
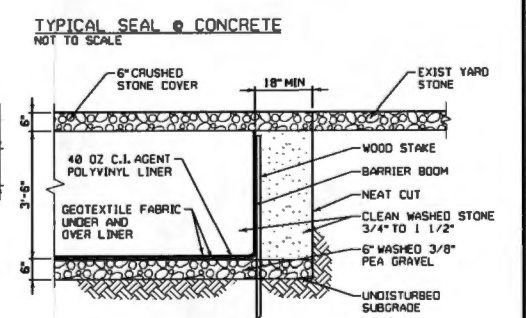
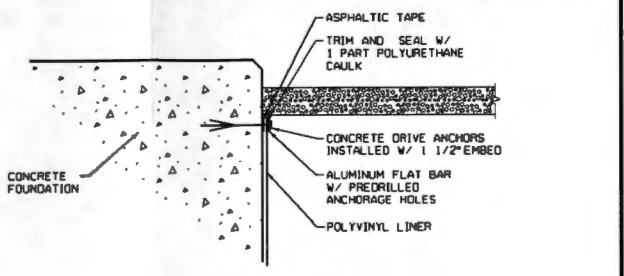
SHEET 1 CONT'D ON 2

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CL.	APP.
1	12/16/13	ISSUED FOR REVIEW	DR	OK	APP
2					
3					
4					
5					
6					

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- GENERAL NOTES:**
1. GEOTEXTILE FABRIC FOR THE TRANSFORMER CONTAINMENT SHALL BE NON-WOVEN FABRIC DEXTEX 1201 BY PROPEX OR MIRAFI 1120N. ALL GEOTEXTILE FABRIC SHALL BE PLACED IN ACCORDANCE WITH THE DETAILS AS SHOWN ON THE PROJECT DRAWINGS. FABRIC PANELS SHALL BE OVERLAPPED 1'-0" MINIMUM.
 2. ALL STORM WATER OR GROUND WATER SHALL BE DRAINED FROM THE SITE AT ALL TIMES DURING EXCAVATION/FILL OPERATIONS. COMPACTION TESTING SHALL BE IN ACCORDANCE WITH THE LATEST ASTM D6938.
 3. CRUSHED STONE COVER 1" TO BE #1 AND #2 MIXED (50% EACH) AS PER TABLE 703-4 OF THE NYSDOT STANDARD SPECIFICATION.
 4. INSTALL LINER IN ACCORDANCE W/ MANUFACTURER INSTRUCTIONS AND PROCEDURES.
 5. SEAL CONDUIT AND GROUNDING PENETRATIONS WITH BENTONITE GRANULAR CLAY PER MANUFACTURER INSTRUCTIONS.
 6. CAP ALL ENDS OF PIPE.
- CONTAINMENT DESIGN CRITERIA:**
1. CONTAINMENT DESIGNED FOR 100% FAILURE OF THE LARGEST OIL CONTAINING COMPONENT OF THE TRANSFORMER.
 2. TOTAL QUANTITY OF OIL IN THE MAIN TANKS AND RADIATORS OF THE TRANSFORMER = 7,832 GALLONS.
 3. VOLUME IS CALCULATED BASED ON 35% VOID RATIO OF THE CONTAINMENT STONE.



REVIEW SUBMITTAL

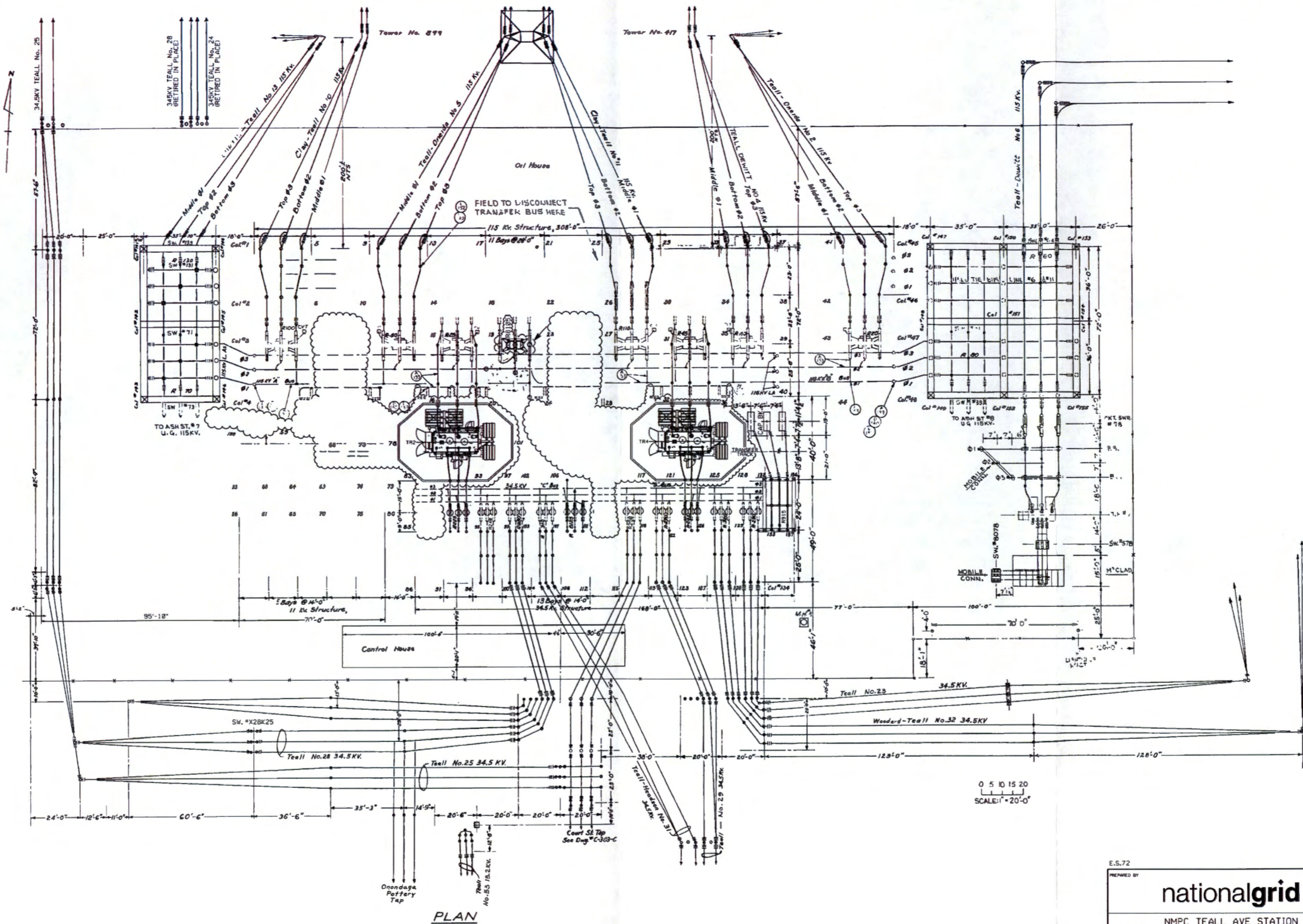
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PRELIMINARY

REFERENCE DRAWINGS
 INSTALLATION OF 15000 KVA TRANS. BANK No.4
 FOUNDATION PLAN
 FOUNDATION DETAIL
 TRANSFORMER FOUNDATION FD-01
 CONDUIT PLAN
 GROUNDING PLAN

22987
 D-22965-C
 27U19
 D-67661-C
 C-9923-C
 C-9926-C

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																PEC DR. APPROVED			nationalgrid			115-34.5-13.2KV			ISSUE DATE 7.2-T1-E																										
																WFM CK. APPROVED						TRANSFORMER CONTAINMENT			DRAWING NUMBER D-67661-C																										
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PLAN

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NMPC TEALL AVE STATION
115-34.5-13.2KV STATION
GENERAL ELECTRICAL PLAN

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